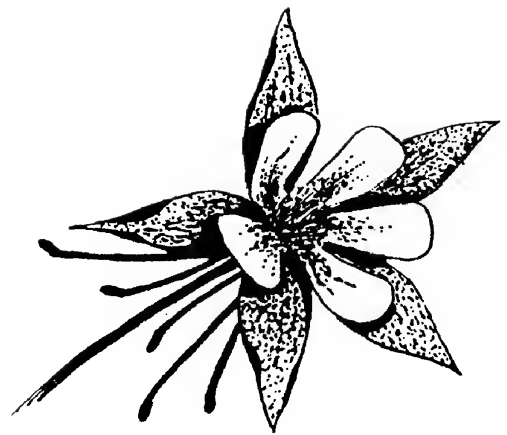


# Aquilegia



Newsletter of the Colorado Native Plant Society

"... dedicated to the appreciation and conservation of the Colorado native flora"

Volume 18 Number 1

January/February 1994

## The Dwarf Milkweed—An Endangered Species?

**Jim Locklear**  
**Dyck Arboretum of the Plains**

I wish I could report that we now have a complete understanding of the biology and conservation needs of the dwarf milkweed, *Asclepias uncialis*. Unfortunately, while we continue to learn more about this plant, it remains one of the most enigmatic species in the flora of Colorado and the great Plains. What we do know about *A. uncialis* suggests that it should be seriously considered for protection as an endangered species.

I first became aware of *Asclepias uncialis* while scanning the treatment of the genus, *Asclepias*, by Dr. Ron Hartman in the Flora of the Great Plains. One rather cryptic statement about this plant grabbed my attention — "This species is either rare or overlooked."

Since then, this little milkweed has been something of an obsession with me. The first time I looked for it was in 1989, searching (with no success) historical localities in Baca and Cheyenne counties in eastern Colorado. In 1990, with funding from The Nature Conservancy and the Colorado Native Plant Society, I spent about ten days searching in northeast New Mexico and southeast Colorado and succeeded in finding populations in Union County, New Mexico and in Las Animas and Pueblo counties in Colorado (see *Aquilegia* Vol. 15 No.2). Two years later, in 1992, the Colorado Native Plant Society again

graciously funded several days of field work, this time in northeast Colorado, resulting in the discovery of a single population in Kit Carson County (see *Aquilegia* Vol. 16 No. 4).

In addition to this field work, I have done an extensive search of herbarium collections for *A. uncialis* specimens. Forty-seven herbaria in North America and Europe were consulted. Altogether, it appears that 37 separate collections of *A. uncialis* have been made (including my own) over a 144-year period, representing approximately 29 different localities. Nineteen of these localities are in eastern Colorado, three in northeast New Mexico, three in southwest New Mexico, three in Arizona, and one in southwest Wyoming.

One current gap in our understanding of *A. uncialis* is the relationship between plants

within the main area of distribution (eastern Colorado and northeast New Mexico) and the collections from Arizona, southwest New Mexico, and Wyoming. Taken together, these occurrences present a rather far-flung area of distribution for such an apparently rare species.

The Wyoming occurrence is a collection made by the famous botanist, Charles C. Parry, in 1873 near the Green River in the southwest part of the state. Parry's collection is baffling since it was made about 250 miles away from the nearest known occurrence of *A. uncialis* in the Great Plains (Weld County, Colorado). Dr. Robert Dorn searched for *A. uncialis* in 1993 in the vicinity of Parry's collection site, but was unable to find it.

The other problematic collections come from Arizona and southwest New Mexico. There is some question as to whether these

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## IS THIS YOUR LAST ISSUE OF AQUILEGIA?

If you haven't paid your 1994 dues, this is the last newsletter you will receive. Don't miss out on all the exciting field trips and other interesting and informative CONPS activities!

Dues notices were sent out in late November. Please remember that your dues cover one calendar year, except that new members who join in the second half of a year are credited for the following year's dues, as well. Your mailing label on this issue of *Aquilegia* shows the year THROUGH which you are paid—i.e., PAID THRU 93 means you should remit your dues for 1994!! (However, if you have sent your payment within the past few weeks, please note that the label could be incorrect due to the lead-time required for newsletter production.)

The membership committee chair, Myrna Steinkamp, also notes that the post office will not forward bulk mail, so if you move and want to continue to receive CONPS mailings, it is essential that you notify the Society (P.O. Box 200, Fort Collins, CO 80522-0200).

### An important reminder...

The post office will soon require us to use 9-digit ZIP codes. Please help us by providing your complete, 9-digit ZIP code on your renewal form. If you do not know your 4-digit ZIP suffix, check some of your junk mail, contact your local post office, or ask your mail delivery person.

Thanks!

*Acomastylis rossii*  
Artist: Janet Wingate



# Aquilegia



*Aquilegia* is published four to six times per year by the Colorado Native Plant Society. This newsletter is available to members of the Society and to others with an interest in native plants. Contact the Society for subscription information.

Articles from *Aquilegia* may be used by other native plant societies or non-profit groups if fully cited to author and attributed to *Aquilegia*.

The Colorado Native Plant Society is a non-profit organization dedicated to the appreciation and conservation of the Colorado native flora. Membership is open to all with an interest in our native plants, and is composed of plant enthusiasts both professional and non-professional.

Please join us in helping to encourage interest in enjoying and protecting Colorado's native plants. The Society sponsors field trips, workshops and other activities through local chapters and statewide. Contact the Society, a chapter representative, or committee chair for more information.

### Schedule of Membership Fees

Life .....	\$250
Supporting .....	\$ 50
Organization .....	\$ 30
Family or Dual .....	\$ 15
Individual .....	\$ 12
Student or Senior .....	\$ 8

### Membership Renewal/Information

Please direct all membership applications, renewals and address changes to the Membership Chairperson, Colorado Native Plant Society, P.O. Box 200, Fort Collins, CO 80522. Please direct all other inquiries regarding the Society to the Secretary at the same address.

### Newsletter Contributions

Please direct all contributions to the newsletter to:

**Tamara Naumann**  
940 Quinn Street  
Boulder, CO 80303

Short items such as unusual information about a plant, a little known botanical term, etc. are especially welcome. Camera-ready line art or other illustrations are also solicited.

Please include author's name and address, although items will be printed anonymously if requested. Articles submitted on disks (IBM or Mac) are appreciated. Please indicate word processing software and version.

### Officers

President .....	Tom Ranker .....	492-5074
Vice-President .....	Janet Hughes .....	933-2425
Secretary .....	Mark Gershman .....	443-9365
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Metro-Denver .....	Jeff Dawson .....	722-6758
Fort Collins .....	Mike Scott .....	490-1788
Yamparika .....	Reed Kelley .....	878-4666
San Juan .....	Gretchen Van Reyper .....	835-3268

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Editorial .....	Tamara Naumann .....	440-8933
Education .....	Andrew Kratz .....	238-6317
Field Trips .....	Rick Brune .....	238-5078
Field Studies .....	Mary Edwards .....	233-8133
Hort/Restoration .....	Dorothy Udall .....	482-9826
Legislative Affairs .....	Nina Williams .....	499-9858
Membership .....	Myrna Steinkamp .....	226-3371
Publicity .....	VACANT .....	
Workshops .....	Susan Eubank .....	277-9458

# ANNOUNCEMENTS

## BOULDER COUNTY ECOSYSTEM CONFERENCE

The Third Annual Boulder County Nature Association Ecosystem Conference will be held on Friday, March 11, starting at 9 a.m. The all-day conference will take place at the Boulder Public Library. Presentations will focus on research and management from an ecosystem point of view, and will include such topics as fire ecology, planning in mountain communities, and riparian restoration. Agendas will be available by late February. For more information, call Nan Lederer at 447-1899.



## LIFE IN AN ASPEN GROVE

*Life in an Aspen Grove*, an educational program prepared by the CONPS Education Committee, is now available in slide/cassette or videotape formats. This introductory-level program takes a close look at aspen trees, the rich and varied habitat they create, and some of the many species that make their home in aspen woodlands for all or part of their yearly cycle. The viewer is encouraged to think about the relationships between various components of this familiar Colorado ecosystem.

The program includes 80 color slides depicting plant and animal life associated with aspen groves. A cassette tape (with audible advance signals) contains the spoken narrative. Alternatively, the program is available as a 27-minute videotape. A printed booklet containing the narrative, an extended text containing additional details, and a glossary of terms is included.

See page 11 for ordering information, or call Miriam Denham (303) 442-1020 for more information.

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## ERRATA

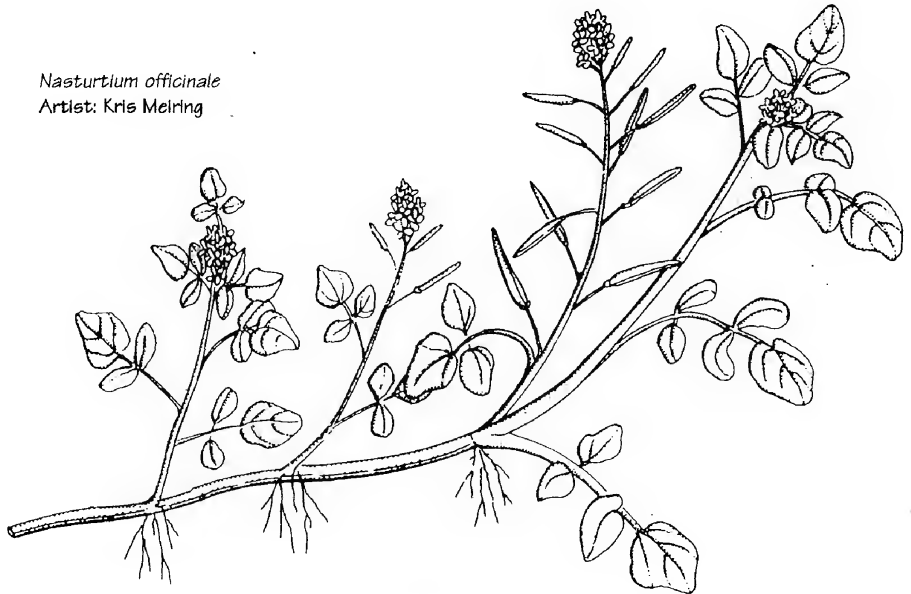
The article entitled *Is The Endangered Species Act In Danger?* that appeared in the last issue of *Aquilegia* (Vol. 17 No.3) contained the following errors:

1. *Echinocereus triglochidiatus* var. *inermis* was mistakenly included in the list of endangered species. This taxon was delisted by the U.S. Fish and Wildlife Service in 1993. The status of variety *inermis* was determined invalid; the taxon has been reduced to a form of *E. triglochidiatus*, and therefore is not eligible for protection under the terms of the Endangered Species Act (*E. triglochidiatus* is common.)

and

2. The Colorado Natural Heritage Program currently lists approximately 300 plant species of special concern—not 88, as reported.

*Nasturtium officinale*  
Artist: Kris Meiring



## NATIVE PLANT SEED EXCHANGE

If you are interested in receiving a list of native plant seeds, or if you are interested in donating seeds for exchange, contact:

Craig Alseike  
3256 Salem Street  
Aurora, Colorado 80011  
(303) 366-0587.

## TUNE IN TO NATIVE PLANTS!

Jim Borland is co-hosting the Gard'n-Wise Garden Talk Show with Keith Funk on KHOW radio (630 on your AM dial.) Jim is a past-president and active member of CONPS. Tune in on Saturday mornings at 8 a.m. to this one-hour show, sponsored by Gard'n-Wise. What a great opportunity to promote the use of native plants in Colorado landscapes! Listen for new ideas or share your ideas with others.

**MILKWEED**, *continued from front page*

collections represent the same taxonomic entity as that found in the Great Plains. This question will probably not be resolved without thorough biosystematic studies. Unfortunately, the material required for such comparative studies will be difficult to obtain from the southwestern occurrences. Of the three known Arizona occurrences, two are quite old (collected 78 and 90 years ago, respectively) and have not been relocated. The other, collected in 1990, consisted of only two individual plants and, despite careful search by the botanist who discovered the population, no plants could be found at the site in 1991, 1992, or 1993.

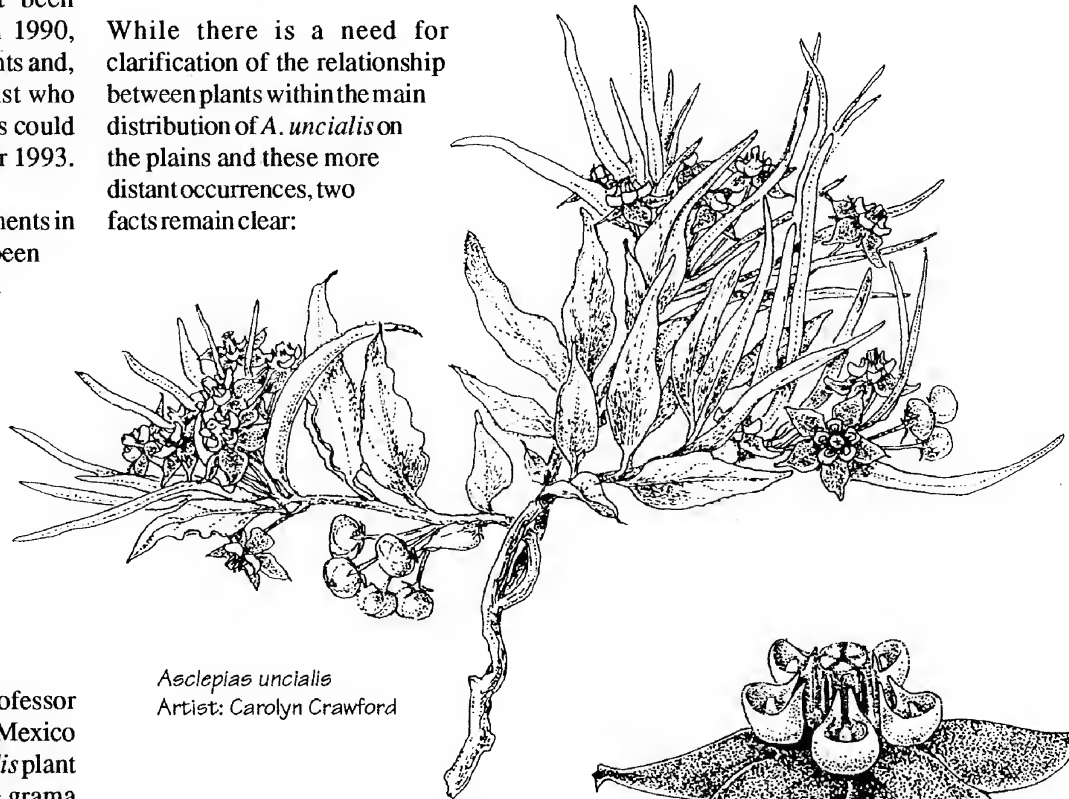
One of the most interesting developments in the saga of *Asclepias uncialis* has been the rediscovery of this species in southwest New Mexico. Edward L. Greene discovered the plant he named *Asclepias uncialis* near Silver City, New Mexico in 1880. It was collected again at Silver City in 1919 by Alice Eastwood, who deposited specimens in several major herbaria. It would be another 73 years, however, before this plant was collected again in southwest New Mexico.

In 1992 Dr. Dale Zimmerman, Professor Emeritus of Biology at Western New Mexico University, located a single *A. uncialis* plant growing in a patch of ungrazed blue grama (*Bouteloua gracilis* = *Chondrosum gracile*) grassland about three miles north of Silver City. As if this weren't exciting enough, a few days later Dr. Zimmerman received a phone call from a friend asking him to identify an unusual low milkweed growing in his backyard in Silver City. To his utter disbelief, Dr. Zimmerman found two more individuals growing in the middle of town on his friend's quarter-acre yucca-grassland remnant!

Dr. Zimmerman has had a long-standing interest in finding plant species described by Edward L. Greene while he resided in the Silver City area during the 1880's, and *A. uncialis* was one of the species he had been keeping an eye out for. Yet, in over 30 years of botanizing in the region, he had not succeeded in finding the plant until 1992.

Dr. Zimmerman did quite a bit of additional searching after finding these two "populations," but no other individuals, much less populations, were found. In a recent conversation, he reported to me that the two plants in the Silver City backyard are doing fine, but he has been unable to relocate the other one-plant population north of town.

While there is a need for clarification of the relationship between plants within the main distribution of *A. uncialis* on the plains and these more distant occurrences, two facts remain clear:



*Asclepias uncialis*  
Artist: Carolyn Crawford

*A. uncialis* has been collected very rarely in the last 50 years and, where it has been found recently, it occurs in exceedingly tiny populations.

This observation is reinforced by my experience in northeast Colorado in 1992. I set out to relocate two historical collection sites and to search other potential habitat for this species. After five days of field work, I succeeded in finding only one population consisting of 14 individual plants. This population, located along the South Fork of the Republican River in Kit Carson County, was found only after hours of painstaking search in the area. And, while acres of apparently suitable habitat were available, the 14 plants occurred together in an area only about one square meter in size.

Small as it is, however, the Kit Carson County population presently stands as the world's largest; all other recently known extant populations of *A. uncialis* consist of only one to nine individuals.

As has been the case in other Great Plains localities where *A. uncialis* has been found

in recent years, there was nothing particularly notable about this species' habitat in Kit Carson County. The surrounding vegetation was shortgrass prairie dominated by blue grama. Typical of other occurrences, the plants in Kit Carson County were growing primarily in small areas of bare soil between patches of blue grama.

- continued on page 5

**MILKWEED**, continued from page 4

The only aspect of this species' ecology on the plains that appears to be characteristic is its tendency to occur on gently sloping ground below rimrock or rock outcroppings, such as at the base of a mesa escarpment. The population in Kit Carson County occurred on a slope below low bluffs of the Ogallala formation. A collection made by Dr. William Weber in Prowers County in 1991 occurred in similar habitat, described as "below rimrock ridges."

The pattern presented by the distribution of historical collections and the present demography of *A. uncialis* is that of a once more common species, now represented by scattered, remnant, possibly declining populations. One-third of the known collections of this species were made in the 1800's, suggesting that *A. uncialis* was more common in the past than it is today. This deduction is supported by the fact that several of the early collections are represented by a number of duplicate herbarium sheets, some of which display several individual plants. As an example, Elihu Hall and J. P. Harbour distributed seven different herbarium sheets from their 1862 collection of *A. uncialis* from "Great Plains, Lat. 41." In another case, one of the five herbarium sheets distributed by Alice Eastwood from her collections at Silver City in 1919 displays

six individual plants—an impressive population by today's standards!

About 60% of the known collections of this plant were made before 1950 and it appears that it was rare even then; C. M. Rogers, who collected *A. uncialis* in Las Animas County, Colorado and in adjacent Union County, New Mexico in 1948, listed this species as "infrequent to rare" in his description of the vegetation of the Mesa de Maya region.

While our knowledge of this species is still rather limited, *Asclepias uncialis* appears to warrant serious consideration for protection as an endangered species. Although it has a rather large geographic distribution, only eight recently verified populations of this species are known to exist. These populations consist of only two to 14 individual plants each. Furthermore, all known populations are quite isolated from one another. Rarity of known occurrences and exceedingly small population size are warning signs that this species may be teetering on the brink of extinction.

Since the majority of the historical collections of *A. uncialis* are from eastern Colorado, both amateur and professional botanists in the state have an opportunity to

help clarify the conservation needs of this plant. Collections during the past few years have confirmed the presence of *A. uncialis* in Fremont, Kit Carson, Las Animas, Prowers, and Pueblo counties. However, historical collection sites in Baca, Bent, Cheyenne, Denver, Huerfano, Otero, Sedgewick, Washington, and Weld counties remain to be relocated and searched.

As the name implies, the dwarf milkweed is a tiny plant and can be quite difficult to find in the field. This situation should be aided, however, by a wonderful illustration prepared recently by Carolyn Crawford. Carolyn's drawing is based on herbarium specimens and photographs, and is an excellent representation. If you're out in the field in April or early May and find a two-inch-tall milkweed with rose-purple flowers that looks just like Carolyn's drawing, then congratulations! You've found one of the rarest plants in Colorado, the Great Plains, perhaps even North America.



## Cutbacks Affect U.S. Fish & Wildlife Service Region 2 Office

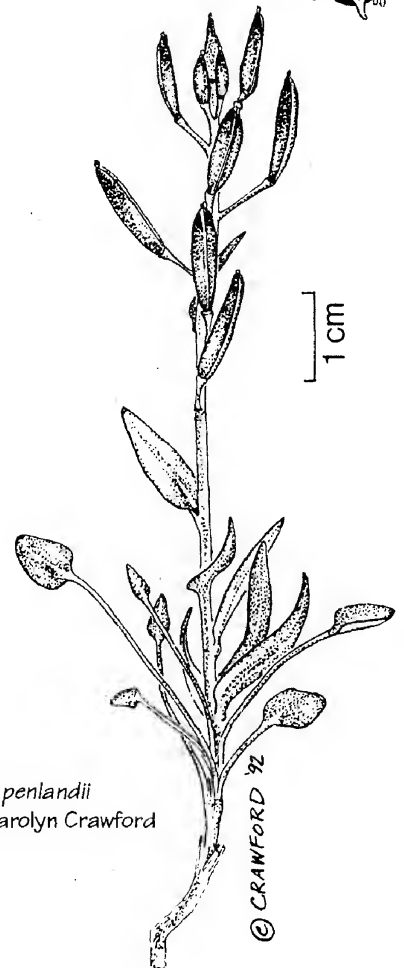
Regional U.S. Fish and Wildlife Service offices are experiencing some "downsizing" as a result of funding cutbacks. Approximately 30 people from offices in Denver, Grand Junction, the Dakotas and Nebraska are being relocated or laid off. This will affect a variety of endangered species programs. Funding is being diverted toward regions, such as the Pacific Northwest, with more visible endangered species problems.

Of particular interest from the CONPS perspective is that Lucy Jordan, botanist at the Colorado office in Grand Junction, has decided to return to the Salt Lake City office and will be leaving her Colorado position January 21st. Lucy has been a focal point for botanical efforts in Colorado and surrounding areas. She has been instrumental in coordinating the Rare Plant Technical Committee, which brings botanists from several government agencies, academia, the private sector, and interested groups, like CONPS. Her presence will be missed.

The good news is that Lee Carlson, supervisor of the Colorado Field Office, intends to hire another botanist or plant specialist to fill the vacant position, perhaps as soon as this spring. For the sake of plant conservation here in Colorado, we hope he is able to fill the position very soon!



*Eutrema penlandii*  
Artist: Carolyn Crawford



## Colorado Native Flora and The Public Lands Grazing Reform Debate

### Tim Hogan Conservation Committee

The issue of public lands grazing has moved onto the front pages of many Colorado papers in recent months. It started this autumn with a filibuster by Western Senators, including Hank Brown and Ben Nighthorse Campbell, over an attempt by the Department of the Interior to raise grazing fees on public lands. The coverage has continued, as a series of meetings called by Secretary Bruce Babbitt have taken place across the state in an attempt to resolve this contentious issue.

Unfortunately, there has been a lack of insight with which the media have been covering the discussion of grazing on public lands. The coverage has focused on economics and an adversarial scenario in which ranchers' culture and livelihood are threatened by elite urban preservationists who don't eat beef. There has been little attention paid to the fundamental reason that public land grazing is opposed by many in the environmental community. The reason is not a balanced budget or an antipathy for ranchers, but rather the indisputable evidence of what cattle and sheep have done to the native ecosystems of western North America. The ecological integrity of countless mountain meadows, dry uplands, and riparian zones has been devastated by poorly managed livestock grazing over the last century. Natural communities and native species have been altered or extirpated from portions of their ranges. Predators have been trapped, shot, and burned. A great silence hangs over a world that was once rich in its diversity of plants and animals. The reason the ranching industry is being asked to reform its practices on public lands is because it has acted without individual or collective restraint.

The General Accounting Office (the investigative arm of Congress) has issued a series of reports on public lands grazing and its effects on land and wildlife. The G.A.O. found that public lands were overgrazed (1989), that cattle were given preference

over wildlife (1989, 1991), that there was no land management (1990), and that grazing of excess numbers of livestock was common (1990). The 1991 report documented conditions so bad that the G.A.O. recommended Congress halting *all* livestock grazing on 20 million acres of arid lands in five states. A 1990 document from the Environmental Protection Agency discloses that riparian areas in the West are in the "worst condition in history," while the G.A.O. reports that grazing is a principle agent in the degradation of Western riparian areas. This is not surprising given the fact that 2,500 gallons of water are required for each *pound* of beef produced in the arid and semi-arid West. The ecological degradation is all the more senseless considering that 260 million acres of public land—an area equivalent in size to the combined eastern seaboard states, from Maine to Florida—are open to grazing, yet these lands produce less than 3 percent of all U.S. beef. The State of Vermont raises more beef than Nevada!

It is important to remember that the subject of reform addresses *public* lands: lands that are held in trust for all Americans. Grazing interests have argued that changes will threaten the livelihood of small ranchers, yet the largest permit holders, the top 10 percent, control about half of the nation's public grazing lands, according to Interior Department figures. Only 12 percent of the permit holders are listed by the government as small operators. Among the largest permittees are the Metropolitan Life Insurance Company, the Mormon Church, the Zenichiku Corporation (a Japanese conglomerate) and Hewlett Packard.

While an increase in grazing fees is necessary, it is only one step toward a thorough reform of the way our public lands are managed. The recent events in the Senate have demonstrated the deep entrenchment of livestock interests. In Colorado, where less than one-tenth of one percent of the population holds a public lands grazing permit, almost every county commission has at least one rancher member,

more ranchers sit in the state legislature than lawyers, the governor grew up on a ranch, three out of eight state Wildlife Commissioners are ranchers, and one of our two federal senators is a rancher.

Members of the Colorado Native Plant Society are in a good position to lend their shoulder to the wheel of change that is attempting to reform grazing policies on our public lands. There are few of our members who have not witnessed first hand the effect that cattle and sheep have had upon our native flora. From the alpine meadows of the San Juans to the grasslands of the Pawnee, we have bemoaned the impact of livestock as we have explored Colorado on Society field trips and on our personal excursions. It is essential that we inform ourselves about the issue, persuade our representatives to support the protection of native plant and animal diversity, write letters to our local papers, and use our botanical expertise to offer testimony at public hearings.

Far too often, the effect of cattle and sheep on the ecosystems of western North America has been one of compromise, loss, and ruin. Aldo Leopold said that to see with the eyes of an ecologist is to "live in a world of wounds." It is important that the abuses to which our public lands have been subjected are stopped, and that a program of restoration is initiated that will begin the healing of these wounds.

### What You Can Do

An environmental impact statement and a new set of draft regulations for public lands grazing is due out in early March.

Write to request a copy of these documents:

Department of Land & Renewable Resources  
U.S. Department of Interior  
Bureau of Land Management  
P.O. Box 65800  
Washington, DC 20035-9998

Request information on  
upcoming public hearings.



# The First Lichen: A Listing Precedent?

## Sally White Conservation Committee

In April 1993, the U.S. Fish and Wildlife Service listed the Florida lichen, *Cladonia perforata*, as endangered. This appears to be the first listing of a lichen, and thus represents a distinctive step in plant conservation. *Cladonia perforata*, distantly related to the more familiar reindeer moss (*Cladina*), is a conspicuous fruticose lichen that forms large dense clusters as much as 2.5 inches tall, according to the listing notice (Federal Register 25746, 27 April 1993). Lichens in this family (Cladoniaceae) are probably the most commonly collected lichens, and even have economic value, being used as miniature shrubbery in architectural models and model railroading, not to mention serving as forage for the world's reindeer.

approach could expedite action on plants (e.g., the alpine plant, *Eutrema penlandii*, which was recently listed as threatened, may occur with other species that are similarly threatened by restricted distribution in an abused environment, yet it languished in a backlog of species in need of attention and protection). In these days of agency cutbacks (see page 5), we would do well to encourage and assist such time- and species-saving habitat oriented listing proposals.

### Don't be too shy

Clearly, other conservationists are not daunted by the prospect of promoting listing

was found at only seven of them. Extensive searches confirmed a total of 12 sites, and another recently destroyed site, but no new sites. Few lichens have enjoyed so much attention.

### Persistence pays off

In 1989, one researcher petitioned the U.S. Fish and Wildlife Service to list *C. perforata*. The Service found listing "warranted but precluded by work on other species having higher priority." The finding was repeated in 1991. As we have observed recently with *Spiranthes diluvialis* and *Eutrema penlandii*, we can't go on with other work and assume

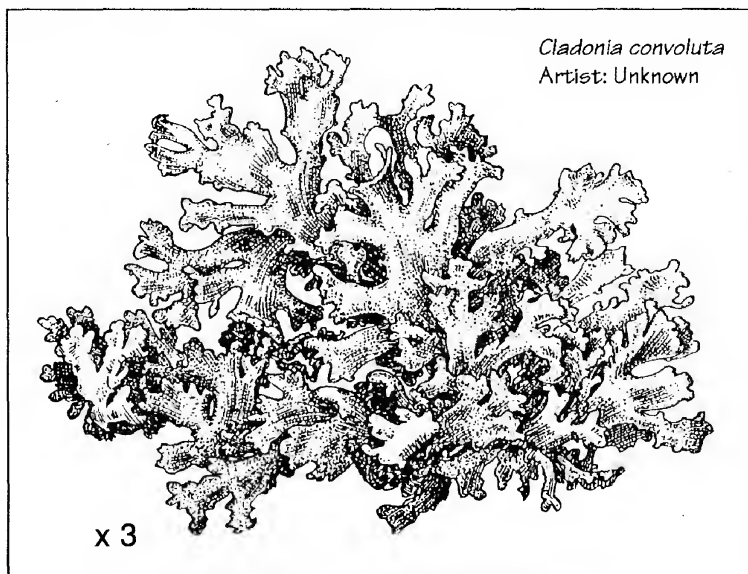
that listing will occur without vigilant monitoring. Unfortunately, priority seems to be based not solely on biological data supporting the need for protection, but also on the degree of nagging that accompanies the data.

### Beyond conservation plans

Thirteen plant species from central Florida scrub habitat are already listed and have recovery plans in place. Efforts to protect these plants are expected to benefit more recent additions to the threatened/endangered species list, as well. Despite the existence of land acquisition plans for more

habitat, the listing notice points out the uncertainty of funding for land purchase and management. It states "The Endangered Species Act will provide additional protection through consultation requirements of section 7, recovery planning, and the prohibitions of section 9...." These protections are just as important for rare plant conservation here in Colorado.

So—congratulations, *Cladonia perforata*, for breaking new ground for the "lower" non-vascular critter, and thanks for reminding us it can be done! We hope you'll be around for a long time to come.



of a lowly, unglamorous plant that may not easily sway public opinion. If the data supporting population declines and threats are there, this action demonstrates that listing is possible—even for a lichen. *Cladonia perforata* has an estimated population size of "only" 26,000 individuals at 12 sites, several of which are already protected or proposed for protection. Opponents of the *Eutrema* listing argued with the U.S. Fish and Wildlife Service and listing supporters over whether there were 5,000+ or 16,000+ individuals! Either figure is too low!

### Good solid legwork

A massive survey of Florida lichens in the 1960s and subsequent studies included searches of 84 "rosemary balds" at the Archibald Biological Station; *C. perforata*

The Florida perforate cladonia was listed along with six other plant species that occur in dry upland vegetation (scrub, high pine, and turkey oak barrens) of central peninsular Florida. This habitat type is a xeromorphic shrub community dominated by evergreen or nearly evergreen oaks and/or Florida rosemary, sometimes with a pine overstory. It occupies well drained, infertile, sandy soils.

"Loss of habitat, primarily to citrus groves and residential development, is the primary threat to these species," according to the listing notice. The majority of this habitat type was converted to citrus groves many years ago. Thirteen other plants, two lizards, and the Florida scrub jay have been listed as threatened or endangered due to loss of this type of habitat; several additional plants remain on the candidate list for possible listing.

What lessons does such a faraway action have for local conservation? I think there are several:

### Ecosystem approaches

The listing of seven species from the same habitat in a single package is efficient. This



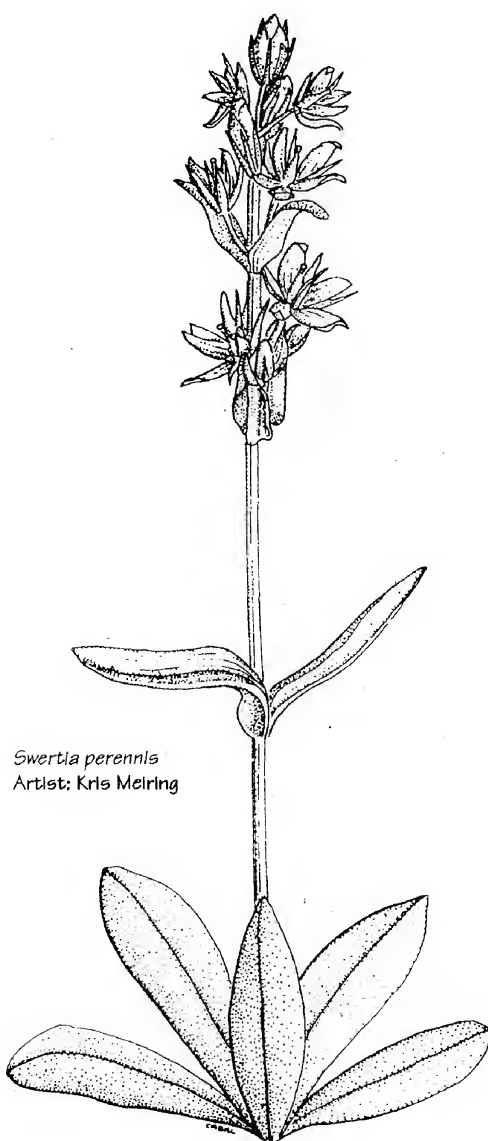
## WINTER WORKSHOPS

The Colorado Native Plant Society workshop series was established in 1985 to provide members with winter-time activities when field trips are impossible. Workshops bring native plant lovers together with a well-informed instructor who may have photographs, herbarium specimens, live plants, or other materials for hands-on study. The opportunity to receive one-on-one instruction and informative lectures has made the workshop series one of the most popular Colorado Native Plant Society programs. Attendees need no special skills or background; a love of plants and the desire to learn are the only requirements. The goal is to demystify plant identification and to enhance our enjoyment and understanding of Colorado's native flora.

After planning and coordinating 100 workshops over the years, Bill Jennings has "retired" from his post as **THE** workshop committee. Susan Eubank, Barbara Siems, and Carol Dawson now share responsibility for continuing this important program. In early October members received a flyer in the mail announcing the fall workshops: **GENTIAN**s with Carolyn Crawford and special guest, Dr. William Weber on November 6 and 7, **KEYING TO GENUS IN BRASSICACEAE (mustard family)** with Dr. Robert Price on November 20 and 21, and **KEYING TO TRIBE IN POACEAE (grass family)** with Dr. David Buckner on December 11 and 12.

Upcoming workshop topics include **SHOWY MONOCOTS (Alliaceae)** with Bill Jennings (call Susan Eubank for date and time), **BIOLOGY OF DWARF MISTLETOES** with Brian Geils on March 12, **FIELD SKETCHING** with Carolyn Crawford on April 23, and **FORENSIC BOTANY** with Vicky Trammell on May 7. Watch for details on 1994 workshops in future issues of *Aquilegia*, or call Susan Eubank (303-277-9458) for current information.

The fee for each full-day workshop is \$10 for CONPS members and \$22 for non-members (see membership information on page 2). Payment is made on the day of the workshop. Checks should be made payable to CONPS. Help your workshop committee by filling out and mailing the registration form below, or call Susan Eubank (303-277-9458) to register for a workshop.



*Swertia perennis*  
Artist: Kris Meiring

### WORKSHOP REGISTRATION FORM

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

HOME PHONE: \_\_\_\_\_ WORK PHONE: \_\_\_\_\_

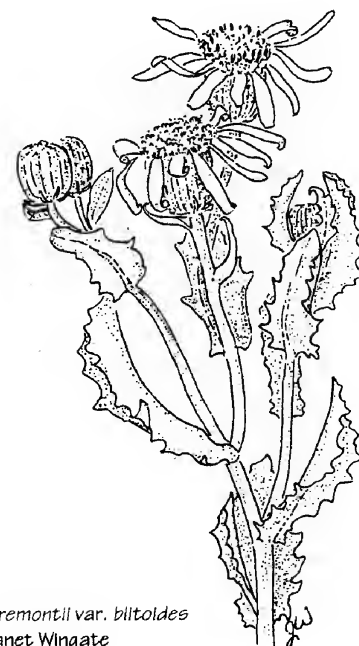
Please register me for the following workshop(s):

Workshop: \_\_\_\_\_ Preferred day: \_\_\_\_\_

Workshop: \_\_\_\_\_ Preferred day: \_\_\_\_\_

Workshop: \_\_\_\_\_ Preferred day: \_\_\_\_\_

Mail to: Susan Eubank, CONPS Workshops, 710 1st Street, Golden CO 80403.



*Senecio fremontii* var. *biltoides*  
Artist: Janet Wingate

# CHAPTER NEWS

## Boulder Chapter

### February 8: Research Natural Areas (RNAs), the U.S. Forest Service, and Biodiversity

Tom Andrews is a Research Natural Area Ecologist employed through a cooperative agreement between the U.S. Forest Service and The Nature Conservancy. Tom will describe his work on RNA designation and discuss implications for biodiversity protection on Forest Service land. National Institute of Standards and Technology (NIST), 325 Broadway, Room 1103.

### March 8: Habitats of Colorado

Bob Powell, a local native plant enthusiast and photographer, will treat us to a slide presentation on Colorado's diverse habitats. National Institute of Standards and Technology (NIST), 325 Broadway, Room 1103.

<sup>cc</sup>  
[Due to unforeseen circumstances, Audrey Benedict's presentation on the natural history of the the Southern Rocky Mountains, originally scheduled for March 8, has been cancelled.]

### April 12: Native Plants For Sustainable Urban Landscapes

Janet Hughes, landscape coordinator and designer for the Colorado State Highway Department in the Denver metro area, will discuss her efforts to use native plants and xeriscaping along highways. Her work toward sustainable landscapes has resulted in a master plan and guidelines for landscaping in Denver, the formation of a non-profit public support group, an outreach program for at-risk youth, and many low-maintenance landscapes. Foothills Nature Center.

Monthly meetings are held from September through April on the 2nd Tuesday of the month at 7:30 p.m. at the Foothills Nature Center, 4201 North Broadway, unless otherwise noted. For more information call Lynn Riedel (666-6687) or Elaine Hill (494-7873). Bring a friend!

## Fort Collins Chapter

**February 3: Native Plant Propagation**  
Kirk Fieseler teaches at Front Range Community College. He will discuss methods for propagating native plant species.

### March 8: Native Plants In The Home Landscape

Tom Throgmorton is a Fort Collins gardener and regular contributor of gardening tips on KUNC radio. Tom will give us some ideas for use of native plants in the home landscape.

### April 5: Riparian Plants of the Colorado River System

Renee Rondeau is a botanist with The Nature Conservancy. Over the past two years, Renee has been actively involved in surveying and classifying important riparian areas in Colorado. She will discuss riparian plants of the Colorado River drainage in Colorado, including some new records for the Western Slope.

### May 3: *Spiranthes diluvialis* (Ute ladies'-tresses orchid) in Fort Collins!

Ellen Wheeler, a local botanist, surveyed 31 sites for the City of Fort Collins. One of them contained a population of this endangered orchid, known recently from only Boulder and Jefferson counties on the Front Range! Share her discovery and get to know the orchid's foothills wet meadow habitat.

Monthly meetings are held at 7:00 p.m. at the Headquarters for the Rocky Mountain Station/Arapaho-Roosevelt National Forest, 240 W. Prospect, Large Conference Room (adjacent to the front patio). For more information call Michael Scott, 226-9475 or 490-1788.

## Metro-Denver Chapter

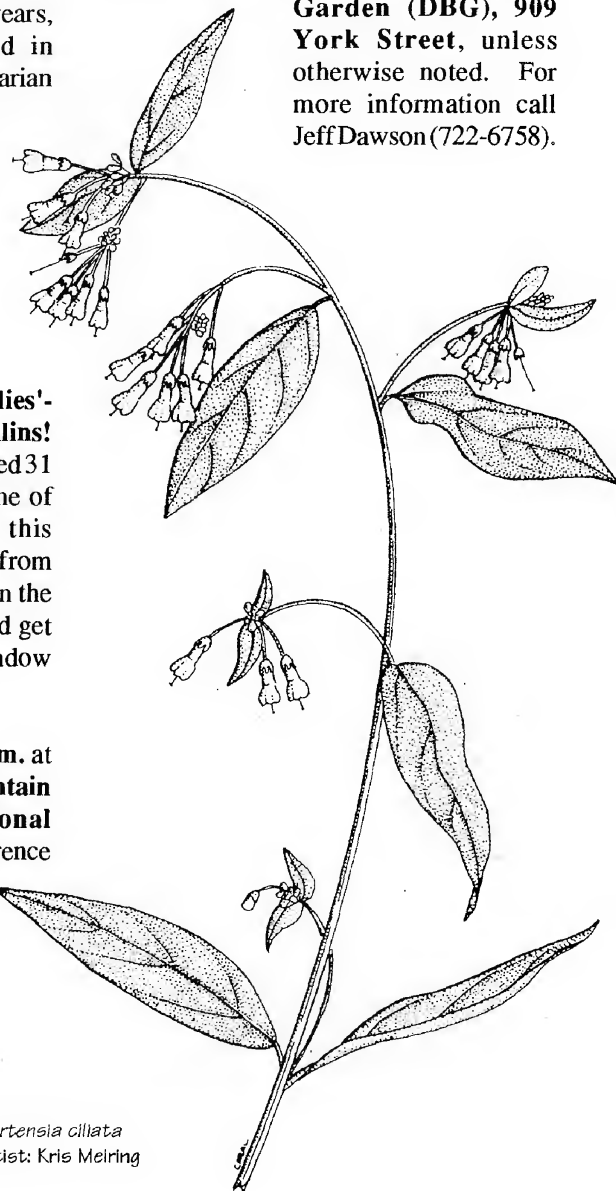
**February 23: Flora of Boulder's Foothills** by Tim Hogan.

**March 23: The Mesa de Maya Region of Southeast Colorado** by Rick Brune.

**April 27: To Be Announced**

**May 25: Pot Luck!**

Monthly meetings are held on the 4th Wednesday of the month at 7:30 p.m. in the Morrison Center at the Denver Botanic Garden (DBG), 909 York Street, unless otherwise noted. For more information call Jeff Dawson (722-6758).



*Mertensia ciliata*  
Artist: Kris Melring

## FOR YOUR LIBRARY →

CONPS is pleased to provide a selection of books to members at discount prices. If you are interested in any of the publications listed on the following page, contact:

Velma Richards  
3125 W. Monmouth  
Englewood, CO 80110  
(303) 794-5432



*Sibbaldia procumbens*  
Artist: Janet Wingate

Make checks payable to CONPS. Postage costs are additional for books received by mail. If you want to save the postage charges, you can pick the books up yourself in Denver from Velma Richards, in Boulder from Tamara Naumann, in Fort Collins from Myrna Steinkamp, and in Meeker from Reed Kelley.

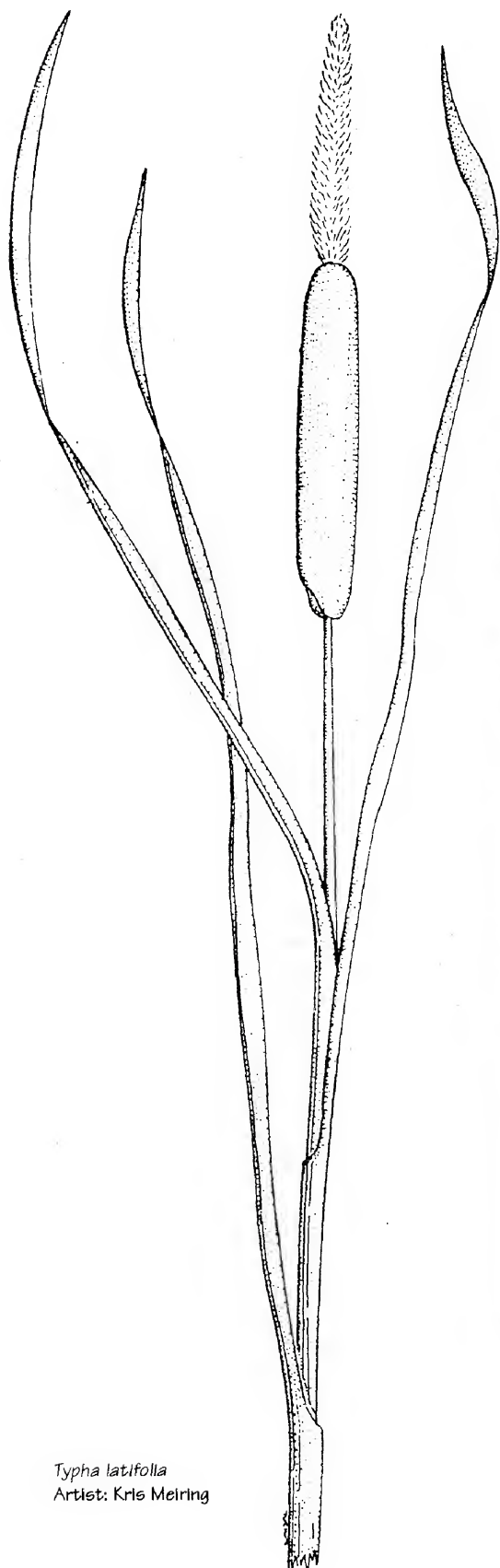
## WANTED: PLANT LISTS

This notice appeared in the American Society of Plant Taxonomists (ASPT) Newsletter 7(3):10-11 in July, 1993. Colorado Native Plant Society members are likely to be particularly good sources for the type of species lists requested by researchers in Oklahoma and Vermont. If you have plant species lists from botanical field trips or projects, you may be interested in helping these researchers. Pass the word along to others who might be interested.

As part of a project to quantitatively compare vascular floras in North America north of MEXICO, information is sought on floras of regions smaller than states (i.e., parks, forests, nature preserves, research areas, islands, counties, individual bogs, mountains, etc.). The ultimate goal of this research is to devise a method to estimate the size of floras, and the degree of completeness in a species list. In order to do this, the researchers need to see as many vascular floras as possible. They currently have information from ca. 1000 floras, but suspect that there are many times this number. A side benefit of their research will be a bibliography of North American vascular floras.

Unfortunately, vascular floras frequently are published in obscure places and are thus difficult to find. The researchers would appreciate information that would help them locate additional floras. They are particularly interested in learning about floras in obscure journals, proceedings of state or regional academies of science, government documents, theses, dissertations, privately published lists, and unpublished lists. They would appreciate entire lists in the form of reprints or photocopies, but *any* sort of bibliographic data is welcome.

For floras west of the Mississippi River, in Minnesota, CANADA, west of (and including) Manitoba and the Northwest Territories, please contact: Michael W. Palmer, Department of Botany, Oklahoma State University, Stillwater, OK 74078, USA. (telephone: 405/744-7717; bitnet: btnymwp@succ). For floras east of these regions, please contact: Gary L. Wade, USDA Forest Service, P.O. Box 968, Burlington, VT 05452, USA. (telephone: 802/951-6771).



*Typha latifolia*  
Artist: Kris Meiring

# COLORADO NATIVE PLANT SOCIETY — DISCOUNTED PUBLICATIONS ORDER FORM

Title	Author	Price Each	Postage Each	Book Total	Postage Total
<i>Alpine Wildflowers of the Rocky Mountains</i>	J. F. Duft & R. K. Moseley	\$ 9.50	\$ 2.00		
<i>Catalogue of the Colorado Flora: a Biodiversity Baseline</i>	W. A. Weber & R. C. Wittmann	\$ 32.00	\$ 2.00		
<i>Colorado Flora: Eastern Slope</i>	W. A. Weber	\$ 21.00	\$ 2.00		
<i>Colorado Flora: Western Slope</i>	W. A. Weber	\$ 21.00	\$ 2.00		
<i>Colorado's Wetland Ecosystems</i>	CONPS	\$ .40	\$ .60		
<i>Edible Wild Plants of the Prairie</i>	K. Kindscher	\$ 10.50	\$ 2.00		
<i>Flora of the Great Plains</i>	Great Plains Flora Association	\$ 35.00	\$ 2.50		
<i>Handbook of Rocky Mountain Plants</i>	R. A. Nelson (revised by R. Williams)	\$ 16.00	\$ 2.00		
<i>How to Identify Plants</i>	H. D. Harrington & L.W. Durrell	\$ 8.00	\$ 2.00		
<i>Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A. by A. Cronquist, et al.</i>					
Volume One: Geological and Botanical History of the Region, Its Plant Geography and a Glossary. The Vascular Cryptogams and the Gymnosperms		\$ 29.60	\$ 2.00		
Volume Three, Part B: Fabales	R. C. Barneby	\$ 51.70	\$ 2.50		
Volume Four: Subclass Asteridae (except Asterales)		\$ 66.15	\$ 2.50		
<i>Life In An Aspen Grove (VIDEO)</i>	CONPS	\$ 20.00	\$ 3.50		
<i>Life In An Aspen Grove (SLIDE/TAPE)</i>	CONPS	\$ 42.00	\$ 3.50		
<i>Medicinal Wild Plants of the Prairie</i>	K. Kindscher	\$ 10.50	\$ 2.00		
<i>Meet the Natives, Ninth Edition</i>	M. W. Pesman	\$ 10.50	\$ 2.00		
<i>Northwest Weeds</i>	R. J. Taylor	\$ 9.50	\$ 2.00		
<i>The Prairie Garden: a Guide to Creating a Shortgrass Prairie Garden</i>	R. Brune	\$ 3.00	\$ 1.00		
<i>Rare Plants of Colorado</i>	CONPS	\$ 8.00	\$ 2.00		
<i>Roadside Wildflowers of the Southern Great Plains</i>	C. C. Freeman & E. K. Schofield	\$ 14.00	\$ 2.00		
<i>Rocky Mountain Flower Finder</i>	J. L. Wingate	\$ 2.50	\$ 1.00		
<i>Sagebrush Country: a Wildflower Sanctuary</i>	R. J. Taylor	\$ 9.50	\$ 2.00		
<i>A Utah Flora</i>	S. L. Welsh, N. D. Atwood, L. C. Higgins, & S. Goodrich	\$ 37.00	\$ 2.00		
<i>Weeds of the West</i>	T. D. Whitson, Editor	\$ 17.00	\$ 2.50		
<i>The Gardener's Guide to Plant Conservation</i>	Nina T. Marshall (Published by World Wildlife Fund & The Garden Club of America)	\$ 10.00	\$ 2.00		
<i>Wildflowers of the Western Plains</i>	Z. M. Kirkpatrick	\$ 12.00	\$ 2.00		
<div>cnpsbook.tab 15 January 1994</div>		<b>BOOK TOTAL</b>			
Calculate sales tax for BOOK TOTAL. (City of Boulder 6.91%, Boulder County outside Boulder city limits 4.05%, Denver 7.30%, Fort Collins 6.00%, Adams, Arapahoe & Jefferson Counties 3.80%, all other areas in Colorado 3.00%)		<b>SALES TAX</b>			
Postage applies only if books are mailed to purchaser; books may be picked up at several locations.		<b>TOTAL POSTAGE</b>			
Make checks out to CONPS. Include your NAME, ADDRESS, and DAYTIME PHONE.		<b>TOTAL</b>			

# CALENDAR OVERVIEW

## 1994 Workshops

- Mar 12**      **Biology of Dwarf Mistletoes**  
with Brian Geils
- Apr 23**      **Field Sketching**  
with Carolyn Crawford
- May 7**        **Forensic Botany**  
with Vicky Trammell

- Feb 3**        Native Plant Propagation
- Mar 8**        Native Plants In the Home Landscape
- Apr 5**        Riparian Plants of the Colorado River
- May 3**        *Spiranthes diluvialis* in Fort Collins!

## Chapter Meetings

### Boulder Chapter

- Feb 8**        Research Natural Areas (RNAs),  
the U.S. Forest Service, and  
Biodiversity
- Mar 8**        Habitats of Colorado—Photographs
- Apr 12**      Native Plants For Urban Landscapes

- Feb 23**      Flora of Boulder's Foothills
- Mar 23**      Mesa de Maya Region of Southeast  
Colorado
- Apr 27**      To Be Announced
- May 25**      Pot Luck!



**Colorado Native Plant Society**  
P.O. Box 200  
Fort Collins, Colorado 80522

## Fort Collins Chapter

## Metro-Denver Chapter

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